Ask the Climate Question
March 3-4, 2010
Workshop Break-Out Session
Response Summary

Report Format

There were several major concerns and solutions that were repeatedly mentioned. For each of these reiterated themes, there is a summary paragraph. These paragraphs are followed by bulleted lists of issues that were mentioned less frequently, but still of importance.

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1. Introduction

The afternoon breakout session of the 2010 "Ask the Climate Question" Workshop gave participants the opportunity to share what they had learned and what they thought would be necessary to implement adaptation across the state., Attendees represented the various planning sectors that will need to develop climate adaptation strategies: natural resources, transportation, land use, economic development, emergency management, infrastructure, health, cultural resources, insurance, and tourism.

2. Overall Theme – Interconnectivity

The main theme found in responses to questions across all participant regions (Mountain, Piedmont and Coastal) was that every concern and solution should be interconnected. Each solution must consider all factors in order to be successful (i.e. water, mass transit, power production and distribution, public education, economic development, health care, agriculture, urban planning, zoning, building codes, regulations and incentives – both positive and negative). Every sector will be impacted by climate change and, in turn, adaptations within one sector will impact the other sectors. Discussion and planning of adaptive measures in one sector must be collaboratively executed (involving other sectors) in order to produce a positive effect on all interconnected parts of society. All plans and adaptation measures need to be viewed through multi-sector lenses, and communicated thoroughly to politicians, other decision makers and the public.

3. Stakeholder Leadership Education and By-In

Several groups discussed the need to have organization-wide, government-wide, sector-

wide information sharing and determination leading up to a plan for adaptation. For example, if a junior group of engineers creates a sound plan that incorporates rising sea level and storm strength but does not educate the senior engineers and decision makers about the importance of these issues, they will not receive the support and political will required to be successful. Long-term planning (minimum 100 yrs.) is required. This necessitates considerable communication across sectors, real-world examples, benchmarks and standard best practices all based on accessible and reliable data.

To lay the foundation for the long-term planning that is needed requires an effort to fill in the gaps of existing data and make it available to all sectors. Also, a comprehensive education and marketing effort must be launched. A consistent and easily understood message for adaptation planning, emergency planning, climate and environmental literacy is needed for all: grade school through adults, every sector, politicians, developers – in short, every type of stakeholder. Environmental literacy for K-12 education is key in preparing future generations to comprehend and support adaptation and emergency response measures. The message should be adapted to be relevant to the audience, i.e. coastal message on the coast, planning message for planners, etc.

4. Major Concerns and Solutions

a. Water Quality and Water Quantity

With less rainfall, a growing population, erratic storms, and increased flooding, water will be in high demand and there will be many stresses concerning its quality and quantity. Uses of fresh water include household, drinking, industry, agriculture, and recreation. Wise planning for urban growth should incorporate trees and landscapes that create shade and need little water to thrive. In addition, the capture of rainwater from streets and roofs, either in small-scale catchment tanks or rain gardens, would keep storm-water out of streams and rivers. Wastewater treatment facilities will need to be planned to accommodate population and built to withstand extreme weather. Grey-water regulations and incentives that encourage proper grey-water use for landscaping and trees will reduce the stress on wastewater treatment and utilize nature's process for filtering water. Without proper planning and creative solutions, lack of water will limit business growth and hamper economic development.

Water conservation measures must go beyond turning off the faucet while brushing teeth and low-flow showerheads. Consideration of water efficiency, runoff rain gardens, wetlands, grey-water use, and energy conservation must be incorporated into every facet and sector of planning. Education on standard best practices will be necessary for each sector. Local and regional plans will need to reach beyond city, county, and state boundaries to assess water sources and water needs. In-migration should be planned for and directed to areas best suited to support it with water resources, housing, jobs, and medical care.

Water Quantity/Quality and Energy are intrinsically linked. Any planning, conservation, and efficiency that benefits one will benefit the other. Likewise any strain on one will strain the other.

b. Rural Areas

Rural areas are more vulnerable in all aspects. These areas will be hardest hit because they have less access to the funding needed to make infrastructure changes. Rural areas will benefit less, or not at all, from mass transit improvements. Agricultural and recreational changes will have more harmful

effects in rural areas. All of these effects will exacerbate out-migration and the resulting reduced tax base. Rural areas also have less political power to engender spending on recovery.

c. Emergency Planning

With the knowledge that we should expect flooding, storms and fire, how can we plan to mitigate these disasters and respond rapidly and efficiently? We should identify areas of risk (prone to flooding, extreme storms, and fire), as well as areas of importance that warrant reconstruction; identify areas that will likely experience out-migration and where likely in-migration will result; buyout disaster prone areas in advance, especially areas that could be important natural habitat, providing ecosystem services or acting as buffers to protect from high winds, wave energy, flooding, and heat islands.

Emergency response plans must cross agency, state, local and regional boundaries, and include comprehensive transportation plans for evacuation. Emergency response plans require practice exercises and citizen-targeted marketing/education/participation. Shelters and staging areas should be identified, provisioned and advertised.

We must empower property owners and buyers with knowledge, and incentives. Real-estate disclosure for risk should be required. For example, contracts should state that land is in a flood plain, hurricane path or has a high risk of fire. An insurance procedure should be created that pays owners to remove or recycle structures prior to disaster.

One final suggestion is to determine a trigger point for reconstruction with identified infrastructure to be rebuilt (or not) in the event of a destructive disaster. Communities with a plan in place for recovery should automatically get funding when disaster costs reach a pre-determined amount.

5. Specific Concerns:

a. Agricultural

- Food supply/Different crops/Crop migration
- Christmas trees
- Saltwater intrusion
- Wine grapes
- Hog farm flooding
- Relocation of animal operations
- Different insect pests
- Fishing threatened
- Drought

b. Health

- Increased stress
- Vector-borne illness
- Heat stroke
- Air quality-related illness
- Water quality-related illness
- Illness spread by insects

- New tools/ change crops
- Extended allergy season/ increase in respiratory issues
- Need for accessible/affordable health services

c. Tourism and Recreation

- Loss of fresh water resources
- Coastal storms limit vacation days and damage living spaces/amenities
- Fishing and hunting threatened
- Park lands threatened by drought

d. Business Impact and Economy

- Effects of storms
- Smaller communities deeply affected by storms

e. Barrier Islands

- Developers will buy land that could otherwise be used for utilities
- Beach nourishment
- Bulkheads, jetties, etc.
- Storm-water management expansion
- New FIRM maps
- Alternative wastewater treatment
- Failing septic systems
- Public education
- Heavy reliance on external funding and technical assistance
- Rebuild at a higher standard
- Increase resources for vector control
- Loss of first couple of rows of houses effecting tourism
- Herculean effort to maintain such efforts as beach nourishments
- Barrier islands are dynamic and continually moving

6. Other General Concerns

- Air quality
- Conservation and wise water use
- Shifting human population causes unexpected outcomes – loss of population and increase in population
- Threats to ecosystem services – clean air/clean water
- Poverty / high cost of living
- Decline in wild native species and habitat or change in species
- Increase in illness/medical costs
- Increase in energy demand in response to hotter summers
- Food supply
- Expense of road/rail maintenance
- Increased cost to municipalities to handle changes
- Increased taxes to pay for changes
- Recreation economy threatened by water demands
- Changes on coast
- Loss of ports/working waterfronts – relocation

7. Other Solutions

- Transportation options
- Design for urban land use, gardening, landscaping, trees
- Utilize plants, crops, trees that can live in modified systems
- Federal incentives
- Plan infrastructure to accommodate sea level rise
- Integrated plans
- Incentives
- Enhanced regulations, building codes, zoning
- Regional partnerships
- Mass transit
- Leadership
- Public education/info sharing
- Economic development
- Compact and mixed use development with green space planning
- i.e. Sustainable/Green Communities – designed for walkability, rainwater catchment, shade trees, reduce the need for driving, running air conditioning, and so on
- Long-range land use planning
- Clean energy production
- Water conservation
- Vulnerability analysis on a community level
- Government buyout or eminent domain of disaster-prone or ecologically sensitive areas, especially areas that perform ecosystem services
- Need to anticipate migration patterns and plan for jobs/housing/transportation/water/health, etc. infrastructure
- Change insurance structure to pay out before destruction – allow homeowners to use payout to move or recycle home
- Emergency education training and exercise, coordination among municipalities
- Emergency plan for transportation and include elderly and at-risk population
- Tougher controls on pollution – i.e., protect the water we do have better
- Education for the public about the emergency plan
- Careful to plan adaptation that does not contribute to pollution or emissions
- Decrease impervious surfaces
- Ask the Climate Question on any new infrastructure